

REMARKS

In paragraph 3 of the final Action, claims 1-6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Frantom et al. in view of WO '801. In paragraph 4 of the final Action, claims 4, 7 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Frantom et al. in view of WO '801 and Seki et al.

In view of the rejections, claims 4, 7 and 8 have been cancelled, and the subject matter of cancelled claims 4, 7 and 8 has been incorporated into claim 1.

A motor retractor system of the invention comprises a seat belt; a first winding device attached to one end of the seat belt and having a motor and a spool for winding the seat belt; a second winding device attached to the other end of the seat belt and having a tension-applying device for always applying a tension to the belt and another spool for winding the seat belt; a through-tongue slidably attached to the seat belt; a buckle to be connected to the through-tongue; and a detecting device attached to at least one of the through-tongue and the buckle for detecting a release of the through-tongue from the buckle.

The motor of the first winding device is connected to the spool so that the seat belt can be withdrawn from the spool as desired without operation of the motor, and when the motor is actuated, the motor winds the seat belt for an amount only withdrawn from the spool. The tension-applying device of the second winding device is attached to the another spool so that when the seat belt is in use, only the second winding device generates tension to a wearer, and the seat belt is freely withdrawn from the another spool of the second winding device while receiving tension to wind the seat belt by the tension-applying device.

In the invention, the retractor system further includes a control unit electrically connected to the detecting device and the first winding device. Upon detection of the release of the through-tongue from the buckle through the detecting device after withdrawing the seat belt from the first and second winding devices

and connecting the through-tongue to the buckle, the control unit actuates the motor of the first winding device to wind the seat belt to the first winding device for only the amount withdrawn from the first winding device.

Namely, the motor retractor system of the invention resides in the combination of the first winding device using the motor, and the second winding device using the tension-applying device for always applying the tension to the seat belt. The seat belt can be freely withdrawn from the first winding device without operation of the motor, and the motor only winds or retracts the seat belt for the amount withdrawn from the first winding device. Also, the seat belt can be freely withdrawn from the second winding device, but a tension is applied by the tension-applying device of the second winding device. Thus, after the seat belt is withdrawn for use, the slack is retracted by the second winding device, not by the first winding device.

In the invention, since the first and second winding devices with different functions are attached to the seat belt, the seat belt can be easily withdrawn from the retractors with a weak force, the seat belt can be put on a wearer with a weak tension, and the seat belt can be quickly stored into the retractors when not in use.

In Frantom et al., a safety restraint system includes a seat belt 10, and a seat belt retractor 14 actuated by an electric motor. One end of the seat belt 10 is attached to the retractor 14 and the other end is attached to an anchor bracket 12. When the seat belt is buckled, the control system is operated to wind the seat belt against the occupant's shoulder and then reverse its direction to provide a predetermined slack.

The system may have dual or separate retractors, one for the lap belt and one for the shoulder belt. Namely, two retractors 14, each being actuated by the motor in winding and withdrawing the seat belt, may be attached to the seat belt.

In the invention, the motor retractor system includes the first winding device having the motor for winding the same, and the second winding device having the tension-applying device for always applying a tension to the belt for winding the same. The first winding device is actuated by the motor, but the second winding device is not actuated by the motor. In Frantom et al., the retractor 14 actuated by the motor is attached to one end or both ends of the seat belt for controlling the length of the seat belt. Thus, both ends of the seat belt can be actuated by the retractors with the motors.

It is clarified in the invention that the second winding device has the tension-applying device for always applying a tension to the belt and another spool for winding the seat belt. When the belt is in use, only the second winding device generates tension to the wearer and the seat belt is freely withdrawn from the another spool of the second winding device while receiving tension to wind the seat belt by the tension-applying device. The second winding device is different from the retractor with the motor used in Frantom et al.

In the invention, the seat belt can be withdrawn at any time from the first winding device without using the motor. Namely, the motor or first winding device does not restrict withdrawal of the seat belt, and the motor is not reversible to provide a slack to the seat belt. In Frantom et al., the motor is reversed to provide a slack, i.e. the motor is operated to withdraw and retract the seat belt. Thus, the first winding device having the retractor with the motor of the invention is even different from that of Frantom et al.

In the control unit of the invention, upon detection of the release of the through-tongue from the buckle through the detecting device, the control unit actuates the motor of the first winding device to wind the seat belt for only an amount withdrawn from the first winding device regardless of the amount of the withdrawal of the seat belt by the second winding device. In Frantom et al.,

there is no explanation about the amount of the withdrawal and retraction of the seat belt, especially, when two winding devices are used.

Therefore, the features of the invention are not disclosed or suggested in Frantom et al.

In WO '801, a restraint presentation system includes a belt 16 and two tensioning mechanisms or take-up reels 18, 20 attached to both ends of the belt 16. The take-up reel 18 biases a shoulder belt portion 33 within a housing 44 until a stop button 50 comes into contact with a slit 44. The take-up reel 20 biases a lap belt portion 31 for winding the excess lap belt portion 31 within a housing 46. Namely, both ends of the belt 16 are wound by the springs.

In the invention, the first winding device has the motor for winding the belt, and the second winding device has the tension-applying device for always applying the tension to the belt for winding the same. In WO '801, the take-up reels 18, 20 have conventional systems, i.e. springs for biasing. No motor winding system is used in WO '801.

In the invention, the detecting device detects the release of the through-tongue from the buckle. Upon detection of the release of the through-tongue from the buckle through the detecting device, the control unit actuates the motor of the first winding device to wind the seat belt to the first winding device for only an amount withdrawn from the first winding device. In WO '801, there is no control unit operated as in the invention, and the motor is not used to wind the seat belt.

The features of the invention are no disclosed or suggested in WO '801.

In Seki et al., a safety seat belt device includes a retractor 1 with a spring biasing system, a seat belt 2 connected at one end to the retractor 1, and an anchor 4 attached to the other end of the seat belt. A tongue 6 is slidably disposed over the seat belt, and a buckle 7 is fixed to the vehicle. The buckle 7 includes

withdrawal means therein. In an emergency situation in a condition that the tongue 6 is fixed to the buckle 7, the withdrawal means operates to pull the tongue to tighten the seat belt on the wearer. In the invention, there is withdrawal means in the buckle.

It was held in the Action that Seki et al teach when the belt is in use, only the second winding device generates tension to a wearer. As explained above, the withdrawal means in Seki et al. is operated in an emergency situation to tighten the seal belt. In the invention, the second winding device always provides tension to the seat belt by the tension-applying device to snugly wind up the seat belt on the wearer. The withdrawal means operating at the emergency situation in Seki et al. is not the second winding device of the invention. Seki et al. does not disclose or suggest any features of the invention.

When Frantom et al. and WO '801 are considered, a seat belt may have at one end the retractor 14 having the motor to wind and withdraw the seat belt as disclosed in Frantom et al. and at the other end the conventional take-up reel 20 having the spring winding system as disclosed in WO '801. However, such a combination does not constitute the present invention.

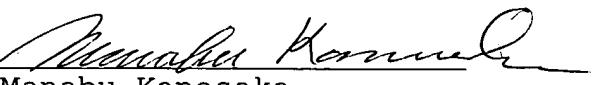
Namely, in the first winding device of the invention, the seat belt can be withdrawn freely at any time, but the retractor 14 of Frantom et al. does not allow the seat belt to be withdrawn freely. Also, in the invention, upon detection of the release of the through-tongue from the buckle through the detecting device, the control unit actuates the motor of the first winding device to wind the seat belt to the first winding device for only an amount withdrawn from the first winding device.

As explained above, even if the cited references are combined, the present invention can not be made. The specific combination of the first and second winding devices with the control unit of the invention are not obvious from the cited references. The present invention can provide the specific advantages in combining the first and second winding devices.

Reconsideration and allowance are earnestly solicited.

Respectfully Submitted,

KANESAKA AND TAKEUCHI

By 
Manabu Kanesaka
Reg. No. 31,467
Agent for Applicants

1423 Powhatan Street
Alexandria, VA 22314
(703) 519-9785